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ABSTRACT

The two major goals established for the Special Office for the Visually Impaired (SOVI) were to increase the numbers and varieties of materials available for education of the visually handicapped and to provide materials information input to the National Instructional Materials Information System (NIMIS). These goals were supplemented by two additional ones that evolved during the course of the 3-year project. The staff's efforts to attain the preceding goals and objectives focused on 11 of the 23 elements (including to locate usable materials which exist and fulfill identifiable needs) specified in the Special Offices Workscope Elaboration. Results obtained through such efforts included: (1) development and/or adaptation of 63 new products for use by the visually handicapped (with two more under development); (2) identification and abstraction of approximately 12,000 materials appropriate for use by the visually handicapped for entry into NIMIS; (3) participation of project and staff in three Area Learning Resource Centers related to training activities; and (4) participation of project staff in the development of a questionnaire for use in the National Needs Assessment. Generally, the project was successful as each of the stated goals and related objectives was attained. (Author/SBH)

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Final Technical Report

Special Office for the Visually Impaired
Department of Educational Research
American Printing House for the Blind, Inc.
Louisville, Kentucky

September 1, 1974 through May 31, 1977

Project No. 446AH50054
Contract No. 300-75-0046

August 31, 1977

U.S. Department of Health, Education, and Welfare
Office of Education
Bureau of Education for the Handicapped

EC 110 762

FINAL TECHNICAL REPORT: SOVI

9/1/74-5/31/77

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The staff's efforts to attain the preceding goals and objectives focused on 11 of the 23 elements specified in the SO Workscope Elaboration. These elements were used in defining the activities in which the staff engaged. Results obtained through such efforts included: (a) development and/or adaptation of 63 new products for use by the visually handicapped (with 2 more under development), (b) identification and abstraction of approximately 12,000 materials appropriate for use by the visually handicapped for entry into NIMIS, (c) participation of project staff in three Area Learning Resource Center (ALRC) related training activities, and (d) participation of project staff in the development of a questionnaire for use in the National Needs Assessment (NNA). Generally, the project was successful as each of the stated goals and related objectives was attained.

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Final Technical Report of the Special Office for the Visually Impaired

American Printing House for the Blind, Inc.
Louisville, Kentucky

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The project reported herein was performed pursuant to a contract with the Office of Education, U.S. Department of Health, Education, and Welfare. Contractors undertaking such projects under Government sponsorship are encouraged to express freely their professional judgment in the conduct of the project. Points of view or opinions stated do not, therefore, necessarily represent official Office of Education position or policy.

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Office of Education
Bureau of Education for the Handicapped

Table of Contents

	Page
List of Tables	v
List of Figures/Illustrations	vi
I. Project Framework	1
A. Project Background	1
B. Project Philosophy, Goals, and Objectives	4
C. Project Organization	5
II. Statement of Work (9/1/74-5/31/77)--Element Strategies	8
A. Area Two--Instructional Materials Development	9
IIA Identify Needed Instructional Materials and Prioritize Needs	12
IIC Locate Usable Materials Which Exist and Fulfill Identified Needs	13
IID Adapt Adaptable Materials Which Exist and Fulfill Identified Needs	16
IIE Develop Needed Materials Which Are Unavailable and Unadaptable and "Unattractive" to Commercial Developers	18
IIF Field Test Newly Developed Extant Materials for Effect on Learner Target	19
B. Area Three--Media, Materials, and Educational Technology Training	20
IIIV Lend Expertise by Handicapping Condition	21
C. Area Four--Media and Materials Information System	22
IVA Identify System Entries, Classify, and Recommend Usage of Instructional Materials for Handicapped Children	23
IVB Evaluate Materials by Standard Criteria	25
IVC Describe Materials and Encode Descriptions for Data Base Entry	26

	Page
D. Area Six--Project Administration	27
VIA Conduct Project Planning, Monitoring, Reporting, and Other Necessary Management Functions	28
VIB Participate in ALRC/SO/NCEMMH Coordination Activities	30
III. Conclusions and Recommendations	32
A. Summary of Major Project Impact on Special Education Delivery Systems	32
B. Recommendations for Future SO Efforts within the Present Workscope	33
C. Recommendations for Modifications of the Present Workscope	33
Addendum	
Appendix 1--List of SOVI Products	34

List of Tables

Table	Title	Page
1	A Summary of the Legally Blind Target Population Served by SOVI	3
2	Relative Expenditures Per Goal During the Course of the Project	5
3	A Summary of the Monitoring and Report Preparation Activities	29
4	A Summary of Staff Participation in ALRC/SO/NCEMMH Coordination Related Activities	31

List of Figures/Illustrations

Figure	Title	Page
1	Organizational Chart--SOVI	6
2	SOVI Workscope Summary	10
3	Materials Processing Model: Review through Abstracting	14

I. Project Framework

A. Project Background

The Special Office for the Visually Impaired (SOVI) is located at the American Printing House for the Blind (APH) in Louisville, Kentucky. APH is the oldest (120 years) national agency for the blind in the United States. Furthermore, it is the largest printing house for the blind in the world and is the only independent institution devoted solely to the publication of literature for use by the visually handicapped and to the development and manufacture of educational aids for their use. Under the Act "To Promote the Education of the Blind," which was passed by Congress in 1879, the APH became the official school book printery for the United States.

Administratively the SOVI is housed in the Department of Educational Research at APH. That department, which was established in 1952 at the request of the American Association of Instructors for the Blind, is formally charged with the following responsibilities: (a) to study the behavior of blind children and (b) to apply the resulting information to the development of methods and materials to facilitate their education.

During the period from 1966-74, the efforts of the Department of Educational Research were augmented by support stemming from a U.S. Office of Education grant for a national Instructional Materials Reference Center for Visually Handicapped Children (IMRC). In 1974 APH was awarded the contract for the SOVI with the expressed purpose of supporting a new Area Learning Resource Center (ALRC) System through the generation of educational materials information and educational materials development. The current staff assigned to the SOVI contract consists of a director and assistant director, three senior researchers, three research assistants, an abstracting supervisor, four abstractors, an educational aids technician, and secretarial support. Other materials development activities being undertaken via support from additional funding sources include the development of a beginning braille reading series; the revision of selected low-vision materials; the adaptation of educational games; the preparation of social studies materials including materials involving maps and graphs; adaptation of an electronic calculator and preparation of related, supplemental materials; the development of biology aids; and the adaptation of different educational measures.

The research and development effort at APH, of which the SOVI is a part, occupies a full floor of about 8,000 square feet in the administrative wing of the Printing House. About 2,000 square feet of that space is occupied by the Reference Section of SOVI, with most of the remainder being taken up in office space. In addition, there is also a model shop of about 1,200 square feet, which is located in the plant.

The staff of the SOVI has received valuable support in its efforts from each of the following APH facilities:

Editorial Department--The staff of this department includes recognized authorities in the braille codes: literary, mathematics, and music. Members of this department are also skilled in preparing metal plates from which both verbal and nonverbal materials are printed.

Production Department--Within this department facilities are available for braille book and magazine printing, large type printing, and letterpress printing along with facilities for a variety of types of binding. Also included are a complete machine shop, skilled craftsmen, and other equipment for manufacturing educational aids from plastic, wood, or metal.

Talking Book Department--This department has a trained staff of readers, electronic specialists who can be used in the development of recording techniques and equipment, and appropriate support personnel. In addition, it includes a variety of machines and equipment including six recording studies, speech compression equipment, and production eqiupment that can be used to reproduce recordings in disc, open reel, or cassette form.

Data Processing Department--This department presently contains three computers--an IBM 360-65 system and two IBM 360-20 systems. The latter systems support the business operations of APH. The 360-65 system is used in the translation of ink print to braille and for research purposes. Current software capabilities permit the completion of a number of types of statistical problems that could result via educational research and development projects.

As indicated earlier, the mission of the APH and SOVI is national in scope. More specifically, the target population addressed includes all legally blind and other visually impaired students of less than college age who are enrolled in formally organized educational programs, which includes both preschool and nursery school participants. Table 1 contains a summary of the legally blind student population. The data upon which that summary is based were obtained from the APH Quota Registrations conducted on January 5, 1976. For presentation purposes those data are grouped in terms of three important demographic factors--grade level in school, reading medium, and registering agency. It is estimated that the total visually impaired population served is 66,000.

Obtaining appropriate educational materials for use by this population of visually handicapped students is a perplexing problem of long standing for educators. This problem is at least partially due to the fact that the total number of such students is relatively small and that they are widely dispersed among a variety of educational programs. As a result, only a small number of textbooks of a given title or a small number of a particular educational aid are generally required. This fact tends to make the commercial manufacture of most of these items unfeasible.

Table 1

A Summary of the Legally Blind Target Population Served by SOVI

January 5, 1976

Grade level in school	Registering agency	Reading medium[a] Braille	Large type	Both	Neither	Totals	Grand totals
Kindergarten	Schools for Blind	138	71	10	50	269	1,610
	State Depts. Educ.	221	342	38	740	1,341	
Elementary (grades 1-6)	Schools for Blind	647	607	64	204	1,522	7,235
	State Depts. Educ.	858	3,863	242	750	5,713	
Intermediate (grades 7-9)	Schools for Blind	437	421	48	86	992	3,826
	State Depts. Educ.	388	1,938	122	386	2,834	
Secondary (grades 10-12)	Schools for Blind	474	389	56	91	1,010	3,482
	State Depts. Educ.	456	1,465	89	462	2,472	
Ungraded	Schools for Blind	830	708	59	1,271	2,868	9,323
	State Depts. Educ.	704	1,766	157	3,828	6,455	
Post-graduate	Schools for Blind	27	2	3	1	33	65
	State Depts. Educ.	10	10	-	12	32	
Adult trainees	Schools for Blind	595	249	147	369	1,360	2,037
	State Depts. Educ.	131	63	29	454	677	
Deaf-blind	Schools for Blind	123	282	15	194	614	1,234
	State Depts. Educ.	142	178	21	279	620	
Cerebral palsy	Schools for Blind	13	10	1	30	54	183
	State Depts. Educ.	6	62	3	58	129	
Totals	Schools for Blind	3,284	2,739	403	2,296	8,722	
	State Depts. Educ.	2,916	9,687	701	6,969	20,273	
Grand totals		6,200	12,426	1,104	9,265	28,995	

[a]Braille--includes braille readers only; large type--includes large type and large type-regular ink print readers; both--includes braille and large type readers; neither--includes readers of regular ink print only, or recorded materials only, and nonreaders.

In an effort to help address this basic problem, a nonprofit corporation, APH, was formed over a hundred years ago. Since that time APH has served as the primary source of the educational materials required by visually handicapped students. However, the complexity of the problem and variety of needs that characterize this target population negate the possibility of a single agency being able to fill such needs. As a result, local improvision through the use of volunteer transcribers and other means has been the practice. Many commercial materials, which were principally designed for other purposes, can be useful in the education of the visually handicapped. However, the task of discovering and adapting such materials is often formidable and beyond local capabilities. Therefore, it seemed desirable to initiate and operate a special organization such as the SOVI, which could help provide educational personnel with critical information about available educational materials while concurrently engaging in the adaptation or development of additional materials.

B. Project Philosophy, Goals, and Objectives

In reference to the requirements specified in the work statement of RFP 74-8 and the needs in the field, two basic goals were established for SOVI. Those goals, which have guided the project during its 3 years of operation together with associated objectives are as follows:

Goal A--To increase the number and variety of materials available for the education of visually handicapped through attainment of the following objectives:

Locate usable materials which exist and fulfill identified needs

Adapt adaptable materials that can be made to fit identified learner needs

Develop needed materials which are unavailable and unadaptable or "unattractive" to commercial publishers

Field test newly developed extant materials for their effects on learners

Toal B--To provide materials information input to the National Instructional Materials Information System (NIMIS) via the realization of the following objectives:

Identify system entries, classify and recommend usage of instructional materials for handicapped children

Evaluate materials by standard criteria

Describe materials and encode descriptions for data base entry

In addition to these two basic goals and their attendant objectives, SOVI has also been concerned with the attainment of two other goals that evolved during the course of the project. Those goals are as follows:

Goal C--Render technical and other assistance to the cooperating ALRC's.

Goal D--Participate in selected aspects of the National Needs Assessment (NNA).

In keeping with the requirements contained in RFP 74-8, during the 1st year of the contract, effort was focused primarily upon attainment of Goal A, materials development and provision. Goal B, information system inputs, received increasing attention during years 2 and 3. Some idea of the relative degree of emphasis placed upon these two areas during the course of the project can be gained from reviewing Table 2, which describes the associated budget expenditures.

Table 2

Relative Expenditures Per Goal During the Course of the Project

	Related percentage of project dollars budgeted during		
Goal	Year 1	Year 2	Year 3
A	58%	54%	43%
B	32%	41%	37%

These percentages are approximate figures due to slight shifts that occurred during the course of each year (e.g., during the last quarter of FY 1975 a task was added related to Goal B which raised the associated budgeted amount for that goal).

Several additional activities directly reflect the two goals, C and D, added during years 2 and 3. The SOVI staff participated in a variety of meetings that focused upon the definition and elaboration of the design for the ALRC/SO/NCEMMH Network. In addition the staff participated extensively in the definition of the educational materials lists and in the development of questionnaires for the NNA.

C. Project Organization

When the SOVI program was originally planned, the project was organized to provide for continuity of its work with that of the IMRC. The IMRC, which was part of the Special Education Instruction Materials Centers (SEIMC) Program, was orginally established at APH in 1966 under Title III Provisions, Section 302 of Public Law 88-154, and functioned quite successfully until the Program was terminated in 1974. This organizational strategy (a) resulted in the utilization of previously developed groundwork (e.g., staff, procedures, materials) in the area of information storage and dissemination and (b) enabled staff to complete selected materials development efforts initiated under the SEIMC Program. Figure 1 contains a summary chart depicting the organizational structure that evolved.

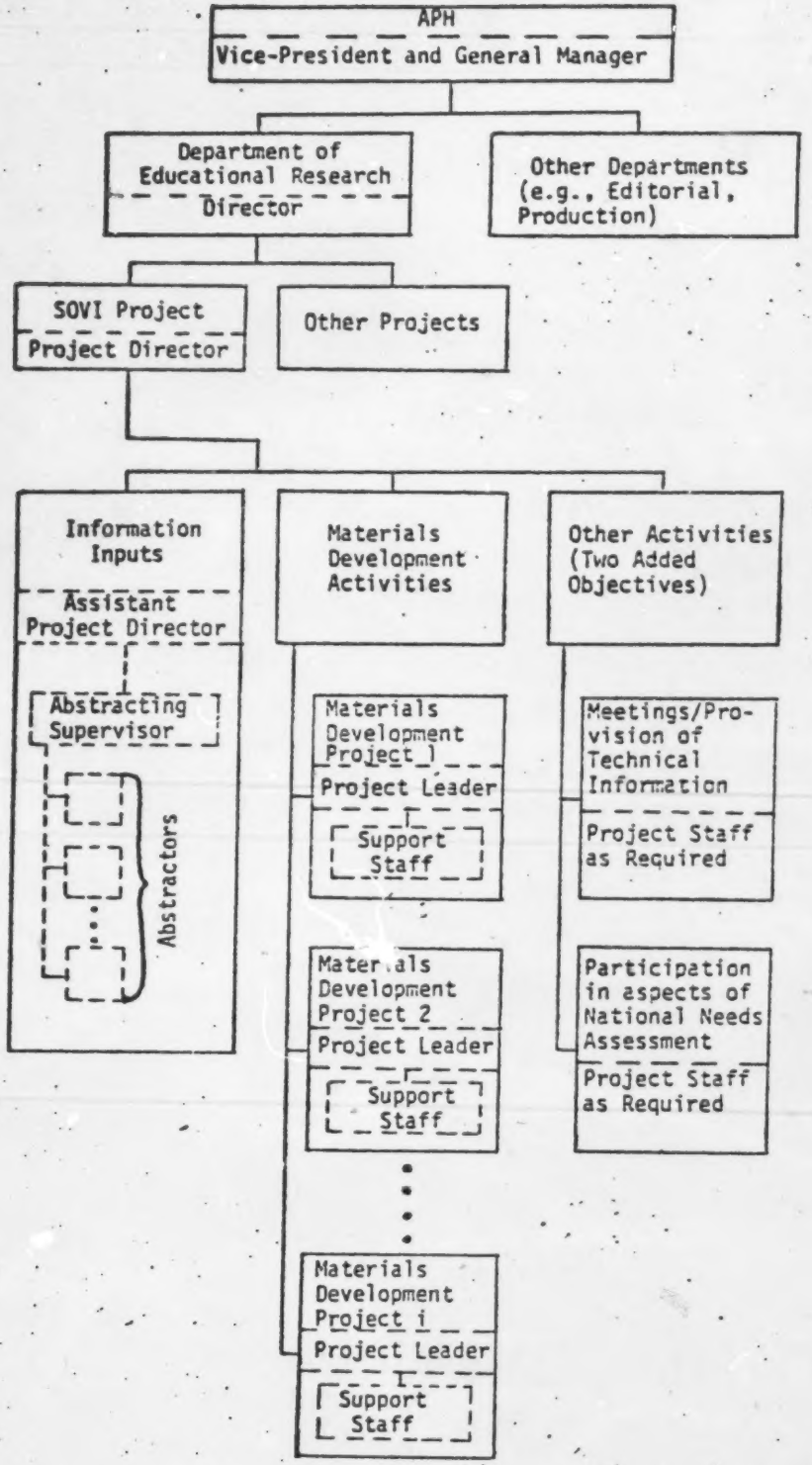

Figure 1. Organizational chart of SOVI.

II. State of Work (9/1/74 - 5/31/77)--Element Strategies

The project staff's efforts to attain the various goals and objectives of the SOVI are organized in terms of a number of workscope elements or sets of activities. Those elements are described in the SO Workscope Elaboration prepared by Coordination Staff at NCEMMH (1976) and are based on the specifications for Special Offices (SO) contained in RFP 74-8; the memo of clarification form Elwood Bland to project directors dated October 1, 1974 (program interpretations of the accountability section of RFP 74-8); the January 19, 1976, Bland memo to ALRC and SO project directors; BEH workscope interpretation; SO directors' workscope interpretations; and inputs from the Uniform Project Administration Committee (UPAC). Figure 2 contains a listing of the complete set of elements indicating those elements directly addressed by SOVI.

A brief review of Figure 2 reveals that the efforts undertaken by SOVI have primarily focused upon 11 of the total set of elements listed. In the materials that follow descriptions of the 3-year operations for each of those 11 elements are presented. Those descriptions are arrayed by Workscope Areas (i.e., a colored divider page has been inserted between the element descriptions related to each major Area). In addition, for administrative ease and efficiency the descriptions are written in such a manner that each one starts on a new page.

Area Two

Instructional Materials Development

SOVI WORKSCOPE AREA/ELEMENT SUMMARY

WORKSCOPE AREA/ELEMENTS	CONTRACT YEAR 1	2	3
A. Area One- STAFF PROGRAM DEVELOPMENT			
(1) IT- Reinforce ALRC's in Intrastate Workshope, Demonstrations, . . .	-	-	-
(2) IV- Provide information on Materials Distribution Systems and . . .	-	-	-
B. Area Two- INSTRUCTIONAL MATERIALS DEVELOPMENT			
(3) IIA- Identify Needed Instructional Materials and Priority Needs.	-	✓	-
(4) IIC- Locate Usable Materials which Exist and Fulfill Identified Needs.	✓	✓	✓
(5) IID- Adapt Adaptable Materials which Can Be Made to Fit Identified Needs.	✓	✓	✓
(6) IIE- Develop Needed Materials which Are Unavailable and Unadaptable and . . .	✓	✓	✓
(7) IIF- Field Test Newly-Developed Extant Materials for Effect on . . .	✓	✓	✓
(8) IIS- Distribute LRCP Developed Materials.	-	-	-
C. Area Three- MEDIA, MATERIALS, AND EDUCATIONAL TECHNOLOGY TRAINING			
(9) IIIH- Operate Non-Print Media Training Library	-	-	-
(10) IIIV- Lend Expertise by Handicapping Condition.	-	-	✓
(11) IIIW- Provide Technical Assistance in the Production of Training Materials.	-	-	-
D. Area Four- MEDIA AND MATERIALS INFORMATION SYSTEM			
(12) IVA- Identify System Entries, Classify and Recommend Usage . . .	✓	✓	✓
(13) IVB- Evaluate Materials By Standard Criteria.	✓	✓	✓
(14) IVC- Describe Materials and Encode Descriptions for Data Base Entry.	✓	✓	✓
(15) IVV- Enhance the Matching of the Delivery System to the Information System.	-	-	-
E. Area Five- MATERIALS DISTRIBUTION SYSTEM			
(16) VB- In-Process Accessions.	-	-	-
(17) VC- Maintain Materials Collections.	-	-	-
(18) VD- Ship Materials within Loan Rules upon Order by Registered User.	-	-	-
(19) VE- Provide Peripheral Depository Sources.	-	-	-
(20) VF- Account for Any Funds Involved in Usage and Shipping Charges.	-	-	-
(21) VT- Advise and Critique SOMD In Services to SOMD Targets.	-	-	-

SOVI WORKSCOPE AREA/ELEMENT SUMMARY

WORKSCOPE AREA/ELEMENTS	CONTRACT YEAR 1	2	3
F. Area Six- PROJECT ADMINISTRATION			
(22) VIA- Conduct Project Planning, Monitoring, Reporting, and Other Necessary . . .	✓	✓	✓
(23) VIB- Participate in ALRC/SO/NCEMMH Coordination Activities.	✓	✓	✓

Figure 2. SOVI workscope summary.

Element IIA

Identify Needed Instructional Materials and Prioritize Needs

(1) Introduction: This element described the necessity for a comprehensive needs survey of the field in the sense of encompassing a national sampling of educators of the visually handicapped and covering the major subject areas that are critical in providing meaningful educational programs. Although other needs assessments and less rigorous than the one envisioned.

(2) Major Activities: Following the funding of Educational Testing Service (ETS) to design and conduct the NNA during year 2, members of the SOVI staff worked closely with personnel from ETS to help clarify the major subject areas to be considered in the segment of that survey which addressed the educational needs fo the visually handicapped. The net result of those efforts was a questionnaire that was to be completed by teachers of the visually handicapped during the course of the NNA. During year 3, SOVI staff were scheduled to summarize the needs identified by questionnaire, thereby attaining the desired needs identification and prioritization.

(3) Results/Conclusions: Although the required instrument was developed and available for use in sufficient time to conduct the survey and to prepare the summary report, numerous problems arose during the instrument clearance process and late in April, 1977, ETS had to delay the survey. As a result, no data were actually obtained and the goal of this element could not be achieved during the contract period.

Although the desired ends were not realized, SOVI's cooperative involvement with ETS staff during the instrument development process did result in a viable product. Furthermore, cooperative relations were firmly established for the timely and efficient sharing of information once the NNA data summaries were available.

(4) Recommendations: The problems that impeded the realization of this element highlight the complexities and potential pitfalls of attempting to conduct broad coordinated field-based research projects. However, in spite of the problems encountered, it is felt that the goals of this element are important and it is recommended that they be pursued.

Element IIC

Locate Usable Materials Which Exist and Fulfill Identified Needs

(1) Introduction: This element was viewed as a direct continuation of activities conducted previously under the IMRC grant. Available materials were surveyed in the areas of science, mathematics, social studies, reading, audiolinguistic skills, and sensorimotor readiness. Information describing these materials was obtained from systematic reviews of commercial catalogues, observations of new materials at exhibits at professional meetings (e.g., the Council for Exceptional Children), monitoring of the materials research and development literature, and personal contacts or communications with active professionals in the field.

(2) Major Activities: During the initial year of the contract each of the indicated strategies was formalized and implemented (e.g., manufacturer's catalogues were systematically acquired and searched). The emphasis of these search activities was upon the catalogues of tangible aids created expressly for the blind. The net result was the identification of approximately 1,800 items for eventual abstracting for reference purposes.

In year 2, the search for materials became even more formalized and intensified. The approach taken involved systematic reviews of commercial manufacturer's catalog, systematic surveys of exhibited materials at professional meetings, the assignment of reviewers to specific tasks, and the establishment of procedures to be employed during the materials review process, and the reporting of the result of those reviews. Figure 3 provides a graphic overview of the materials processing model utilized. The application of that model resulted in the conduct of surveys of numerous exhibited materials, the execution of searches of more than 300 commercial catalog, and the identification of more than 6,700 additional tangible aids.

Materials searches during the 3rd year centered more on the print materials adapted for use by the visually handicapped through conversion into braille, large type, or recorded form. Initially those searches concentrated on the catalog issued by APH. The resultant effort led to the identification of over 5,000 additional materials.

(3) Results/Conclusions: The 3 year effort to locate educational aids and materials useful with visually handicapped students resulted in the identification of slightly over 14,000 usable items. During years 1 and 2 that effort focused somewhat more upon locating tangible aids (nonprint materials), and in year 3 it centered more upon printed materials which had undergone some form of adaptation. These resultes are quantitatively presented in the project's Quarterly Reports.

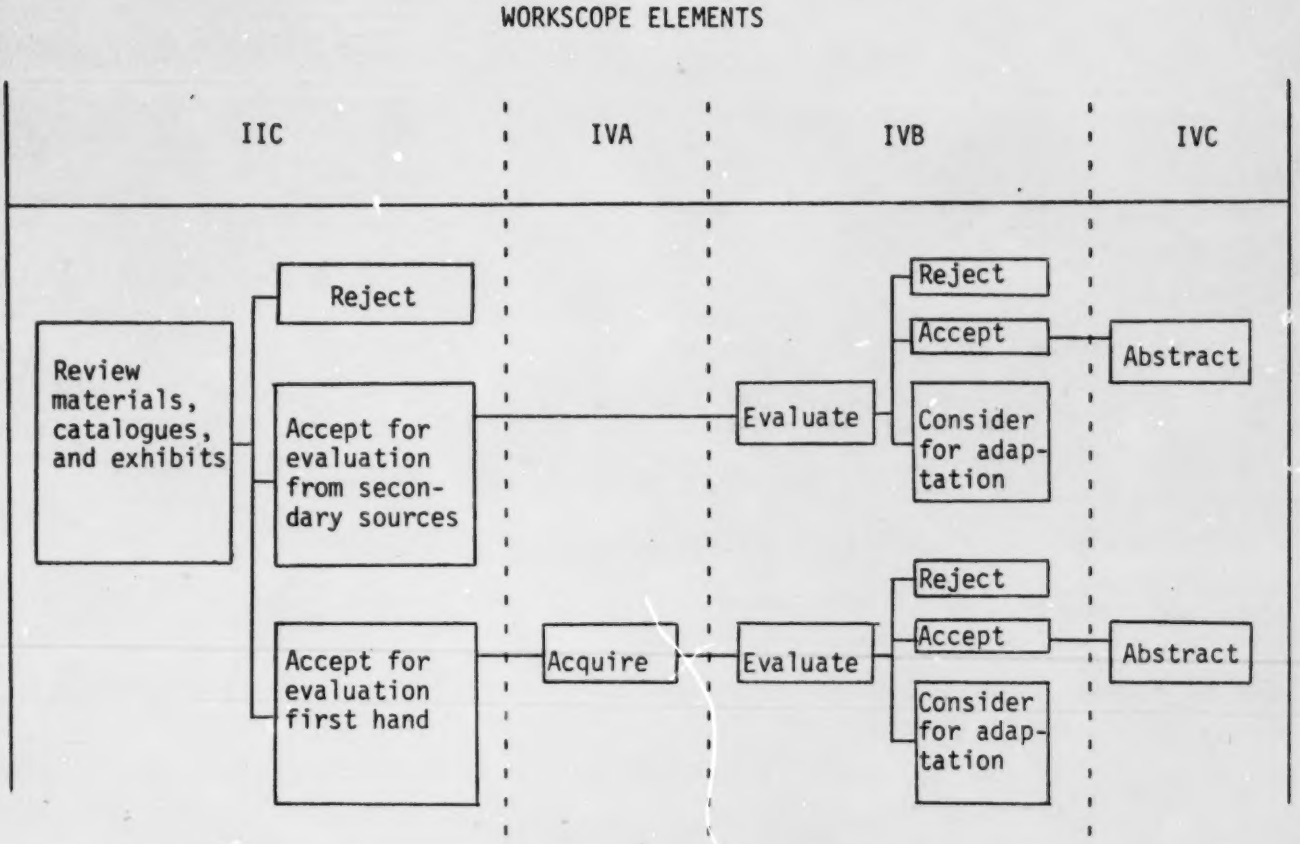

Figure 3. Materials processing model: review through abstracting

(4) Recommendations: Although successfully completed, the activities initiated under this element raised several issues that deserve further consideration. First, the effort to locate and evaluate items was a great deal more time consuming and costly than originally conceived by the sponsor and might have served as a viable candidate for a project in its own right. Second, most materials, particularly when developed commercially, are not directly supported by emperical evaluative data and the attainment of such supportive evidence can be very costly and time consuming. In the absence of such data, the requisite evaluations usually must be made in shortcut fashion through "expert" reviews which have many inherent problems and weaknesses. Finally, many commercial materials may be useful for handicapped education which were not originally developed for such specialized purposes. The problem exists in these cases of defining criteria and related criterion levels to be used to judge whether a particular commercial product should be recommended for use in education of handicapped students.

Element IID

Adapt Adaptable Materials Which Exist and Fulfill Identified Needs

(1) Introduction: The activities undertaken as part of this element during the 1st year evolved directly from activities initiated under the previous IMRC contract. The general strategy employed during the adaptation process involved the following basic steps: (a) undertake any required changes in the identified materials so they more adequately meet the special requirements of visually handicapped students, and (b) conduct subsequent evaluations and refinements of the adapted materials in order to insure that the changes undertaken result in the kinds of outcomes desired.

(2) Major Activities: Two sets of adaptation activities were started in FY 1975. Those included (a) completing the evaluation and refinement of two levels (E and G) of "Listen and Think" produced by Educational Development Laboratories, McGraw-Hill, and initiating the adptation of two additional levels (H and I) of the same program, and (b) undertaking the adaptation of the Durrell Listening-Reading Series and the Boehm Test of Basic Concepts.

In FY 1976 several of the previous year's adaptation efforts were continued and several others begun. More specifically, the following activities occurred: (a) the adaptation of the final level (AR) of "Listen and Think" was undertaken; (b) work was completed on the adaptation of the Durrell Listening-Reading Series and the Boehm Test of Basic Concepts; (c) a set of outline maps for large type readers was adapted; (d) the possibility of adapting selected self-instructional systems for use by the visually handicapped was explored; (e) the adaptation of metric measurement materials for use by blind students was started; and (f) the identification of potential, basic reference materials for the partially sighted initiated.

During FY 1977 the adaptation of the basic metric measurement materials and basic reference materials started during year 2 was continued.

(3) Results/Conclusions: As a consequence of the activities cited a number of newly adapted materials are now being made available to the visually handicapped. Included among those materials are (a) Levels E, G, H, I, and AR of the "Listen and Think" Program. (b) a tactile analogue to the Boehm Test of Basic Concepts, (c) adapted braille and large type editions of the tests in the Durrell Listening-Reading Series, and (d) a set of outline maps for large type readers.

Those adaptation activities which were started, but not completed as of 5/31/77 are: (a) the development of basic reference materials for the partially sighted--this effort was terminated due to the current availability of most commonly used reference materials in a usable form and the lack of consistency among the materials not currently available; (b) the adaptation of

selected self-instructional systems for use by the visually handicapped--this effort resulted in the identification of a number of basic technological and cost problems that made adaptation of these materials not feasible; and (c) the adaptation of basic metric measurement materials for use by the blind--this effort is continuing and, to date, has resulted in the adaptation of a set of aids and related instructional materials that are to be used to teach prenumber concepts. The formative evaluation of those materials was completed during June, 1977 and have subsequently been revised.

(4) Recommendations: Although considerable success was achieved in the materials adaptation activities discussed above, the most positive outcome was that those materials were quickly placed in production and made available to students. Such an outcome can be directly attributed to the unique position of APH and suggests that in the future such adaptation (and development) efforts should be prefaced by concern for such issues. All too often good products evolve from funded research projects but are lost in some "archives" before they ever reach the classroom. What is even more unfortunate is that products have frequently undergone better evaluation than the educational products currently on the market.

Element IIE

Develop Needed Materials Which Are Unavailable and Unadaptable and "Unattractive" to Commercial Developers

(1) Introduction: The activities falling under this element, like those described in relation to Element IID, evolved directly from the materials development activities being conducted at APH prior to the initiation of the SOVI contract. Furthermore, the same basic set of developmental steps, procedures, and control standards employed in those earlier efforts were used to guide the current activities.

(2) Major Activities: One of the development activities worked on during FY 1975 was a direct carry-over from previous efforts under the IMRC grant. It involved the preliminary, formative testing of several units designed to help improve the auditory and oral language skills of very young visually handicapped students. A second development activity involved the preparation of the Introduction to Map Study I Program, which was designed to introduce fundamental map reading concepts and skills to young blind students. It was developed, evaluated, revised, and readied for more extensive field testing.

During the 2nd year of the project, staff continued to work on the auditory and oral skills program. More specifically, the related materials were substantially revised, based upon the evaluation results obtained during the 1st year, and readied for a second formative evaluation. Several other development efforts initiated during year 2 were: (a) the Basic Sensory Stimulation Kit, designed to provide very young visually handicapped students with meaninfgul, structured sensory experiences and (b) the Light Experiment Kit, a set of tangible aids to conduct a series of individualized experiments involving light related phenomena was developed subjected to a preliminary evaluation, revised, and readied for a more extensive assessment during year 3.

The 3rd year of the project basically involved (a) the evaluation of the Light Experiments Kit and (b) the preliminary development of a Two- and Three-Dimensional Aid to be used for teaching a broad range of spatial concepts to blind children.

(3) Results/Conclusions: The development activities described resulted in the following outcomes: (a) Year 1--Introduction to Map Study I--developed, tested, revised, and readied for field testing during year 2 and (b) Year 2--Basic Auditory and Oral Language Materials--tested, revised, readied for final formative review and subsequent field testing during year 3. Basic Sensory Stimulation Kit--prepared, reviewed, and readied for field testing during year 3. Light Experiments Kit--prepared, formatively tested, and readied for further testing and refinement in year 3 and (c) Year 3--Two-and Three-Dimensional Aid--a prototype was developed, subjected to preliminary formative tests (during the latter part of May, 1977 and beginning of June), and will be revised and tested more extensively during FY 1977, and one set will be readied for field-testing in FY 1978.

(f) Recommendations: None

Element IIF

Field Test Newly Developed Extant

Materials for Effect on Learner Target

(1) Introduction: This element was interpreted to include the field testing of materials being adapted and developed by project staff. Although formative evalution often was involved in the development of such materials, formal field testing of the materials was done only when the project staff considered them to be nearing final form.

(2) Major Activities: Procedures were established by which those materials that were field tested were subsequently revised, as indicated by the field test, prior to being submitted for production approval at APH. During the 1974-75 project year three sets of materials being adapted for use by the visually handicapped were field tested. These included Levels H and I of Educational Development Laboratories "Listen and Think" program, a tactile analog of Form A of the Boehm Test of Basic Concepts called the Tactile Test of Basic Concepts, and the Primary Level of the Durrell Listen-Reading Series. The latter provided evidence substantiating the usefulness of braille and large type editions of this level of the test series. During the 1975-76 project year two sets of materials were field tested. One was the adaptation of the lowest level, Level AR, of Educational Development Laboratories "Listen and Think" program, and the other was a new set of materials called Introduction to Map Study I. During the 1976-77 project year three sets of new materials were field tested. These included a set of Individualized Light Experiments, a Sensory Stimulation Kit, and a set of early language development materials called Sing About Me.

(3) Results/Conclusions: All materials field tested during the first two project years were subsequently approved for production at APH. Those test efforts undertaken during the final contract year were still being conducted as of 5/31/77.

(4) Recommendations: None

Area Three

Media, Materials, and Educational Technology Training

Element IIIV

Lend Expertise by Handicapping Condition

(1) Introduction: Due to personnel and fiscal commitments to the other Workscope Areas during the first 2 years of the contract, elements in Area Three such as Element IIIV were not formally addressed. During those 2 years; however, a number of staff members from various ALRC's expressed an interest in becoming more familiar with the special materials and needs which characterize the field of the visually handicapped. Therefore time and resources were committed to this element during year 3.

(2) Major Activities: The major effort originally proposed was to conduct 2-day workshop for all interested ALRC personnel. Furthermore, that workshop was to be held near the beginning of Q2 (FY 1977) and was to represent a joint effort with Special Office Three. During the first quarter of the year, project staff engaged in preparatory activities for the workshop. In mid-October a polling of the ALRC's revealed that a sufficient number were not interested or were unable to attend the scheduled session. Subsequently, it was canceled and arrangements made for visits involving personnel (both professional and advisory) from several individual ALRC's were held during the course of the year.

(3) Results/Conclusions: In all, three ALRC's attended orientation sessions held at APH in Louisville during the year. In addition, individual staff members attended, upon request, meetings sponsored by two other ALRC's. Documentation for these activities can be found in the Quarterly Reports submitted for FY 1977.

(4) Recommendations: In similar programs in the future it may be more efficient and advantageous to restrict the size of such training sessions. The experience of SOVI staff was that sessions involving individual ALRC's were more manageable, less formal, and allowed more time for meaningful interaction among those attending. Furthermore, they could be more easily scheduled at the convenience of the requesting ALRC's, thereby reducing the incidence and effects of conflicts in schedules.

Area Four

Media and Materials Information System

Element IVA

Identify System Entries, Classify, and Recommend Usage of Instructional Materials for Handicapped Children

(1) Introduction: At the operational level this element was separated into three major subsets of activities. Those subsets were as follows: (a) establishing standards and criteria for materials identification and evaluation, (b) acquiring materials for in-house review and evaluation, and (c) maintaining the Central Catalog of Volunteer and Commercially Produced Textbooks for Visually Impaired Students.

(2) Major Activities: During the 1st year of the contract SOVI participated with the two other special offices and NCEMMH in a collaborative effort to define the criteria for selection of materials for entry into NIMIS. In year 2 the results of those initial efforts were refined and integrated into a set of standard criteria that were to be applied on a network wide basis during year 3.

Some materials cannot be properly evaluated and abstracted without physical examination. Commercial catalogs generally provide only introductory information regarding each entry cited and often make claims that are unjustified. Furthermore, additional uses for a product may become evident once it is physically examined. As a result of these factors, during each of the 3 years of the project, efforts were made to acquire selected materials for final evaluation and for thorough examination for abstracting purposes. In all cases the producers fo those materials were requested to supply them either gratis or on a loan basis.

Since not all adaptations of texts and other forms of printed materials needed by the visually handicapped can be mass reproduced by agencies like APH, the Central Catalog of Volunteer Produced Textbooks was established by APH in 1959. Its expressed purposes were to prevent duplication of volunteer efforts in producing single copies of critical materials and to serve as a national reference source on the availability of such materials. During the 3 years of the SOVI contract, efforts have been directed toward (a) maintaining and increasing the number of entries in the Central Catalog and (b) adapting the format of the materials contained in the Catalog to make it more compatible with that required for entry into NIMIS.

(3) Results/Conclusions: The efforts to develop a set of standard criteria for evaluating potential NIMIS entries were successful and a statement detailing those criteria was made available in final printed form early in FY 1977. Subsequently, they were used by project staff to evaluate potential entries which had not been specifically developed for use by the visually handicapped.

The efforts to obtain materials for physical inspection and evaluation reached their peak during year 2, and were substantially reduced in year 3. That trend is illustrated by the following empirical data:

	1974-75	1975-76	1976-77
Number of items acquired for in-house review/evaluation	28	595	15

The efforts to increase the compatability between the data contained in the Central Catalog and the data requirement of the NIMIS system were basically unsuccessful. Although a number of meetings were held involving staff from the two projects, no concrete determination of an operational strategy for integrating the two systems was ever developed. At the same time, the efforts to maintain and update the Catalog were quite successful, as is illustrated by the following empirical data:

	9/1/75	9/1/76	5/31/77
Number of entries made in the Central Catalog	11,825	11,682	6,775

(4) Recommendations: The final set of standard criteria that was produced came too late to be of great benefit to the SOVI staff. Furthermore, the criteria required information that was frequently not available. They could probably be most useful for evaluating materials like those developed and tested under Area Two because of the direct availability of supportive evaluative data, but not nearly as useful for evaluating materials without such a direct data base.

Future projects that involve efforts to acquire materials for review and evaluation should be more adequately conceptualized with appropriate instrumentation available at their initiation. The approach used in the current project required much of materials evaluation to be completed before appropriate criteria were defined and standardized among reviewing units.

Element IVB

Evaluate Materials by Standard Criteria

(1) Introduction: This particular element involved the application of the standard criteria developed as part of Element IVA. During years 1 and 2 it involved the application of evolving criteria under development as part of Element IVA. During year 3 it involved the application of the standard criteria, per se. During the first 2 years, the following interim criteria primarily were used to evaluate potential materials; (a) a long history of successful use with visually handicapped children, (b) approval by independent groups of experts, or (c) available empirical evidence of usefulness. The general model under which both sets of criteria were employed was described in Figure 3 in the summary for Workscope Element IIC.

(2) Major Activities: As indicated above, interim criteria were used to evaluate the entry candidates for NIMIS during FY 1975 and FY 1976. It was only during the last year that the standard criteria could be employed. However, they were used to evaluate a very small number of materials--those that had been identified during year 2, but not actually acquired for evaluation (Element IVA) until year 3.

(3) Results/Conclusions: The standard criteria developed during the first 2 years were available to evaluate only a small part of the materials reviewed. They were not available to evaluate the other materials considered during the first 2 years of the project. Interim criteria were used during this period.

(4) Recommendations: The results presented above reinforce the need for coordination and timely collaboration among contractors in a network such as the ALRC/SO/NCEMMH Network. Resolution of a basic problem like the specification of the standards should have been completed at least a year before it actually occurred.

Element IVC

Describe Materials and Encode Descriptions for Data Base Entry

(1) Introduction: This element encompassed all the activities involved in preparing actual abstracts in accordance with the procedures and requirements of NIMIS.

(2) Major Activities: During the 1974-75 contract year the abstracting operation was formally started by April. On June 1, 1977, the numbers of abstractors employed was five. The abstracting process was continued at approximately the same level, with the same number of employees over the 2 suceeding years. The procedures employed during that entire period were those defined in the abstracting Manual and Thesaurus prepared by NIMIS personnel in cooperation with personnel from the various special offices and ALRC's.

(3) Results/Conclusions: The numbers of abstracts prepared during the contract period were as follows:

	Contract Period			
	1974-75	1975-76	1976-77	Total
Number of (new) abstracts prepared for NIMIS entry.	1,682	6,590	3,924	12,196

Cost per abstract ($12.87) was relatively low.

The number of days of staff effort devoted to the Thesaurus Committee were as follows: (a) 1974-75- 7 days; (b) 1975-76- 10 days; and (c) 1976-77- 8 days.

(4) Recommendations: The outcomes of this particular element are perhaps the most impressive of any evolving from the overall program. A valuable product has resulted which should have far eaching implications for helping to improve the education afforded handicapped children. The essential next steps involved in the day-to-day, practical application of these results need to be pursued immediately.

Area Six

Project Administration

Element VIA

Conduct Project Planning, Monitoring,

Reporting, and Other Necessary Management Functions

(1) Introduction: This element was defined in terms of three major subsets of activities. Those subsets were as follows: (a) engaging in essential planning to insure attainment of SOVI goals; (b) monitoring daily operations to help facilitate execution of individual efforts as defined by Elements IIA though IVC; and (c) perparing reports to help document and describe the progress made toward the realization of SOVI goals.

(2) Major Activities: Planning activities during the course of the contract have been of several types. First, they have involved efforts to revise and/or expand the plans outlined in the respective annual proposals. Second, they have been concerned with identifying priorities and directions for the various materials adaptation, development, and field testing activities undertaken. Finally, they have involved the integration and coordination of activities from year-to-year, as well as projections of activities to be continued after the contract period.

The monitoring effort has focused upon those factors considered to be essential tracking data. These include personnel time expenditures, budgetary expenditures, and attainment of goals and outcomes within the time-frames specified. One product of particular importance has been the monthly expenditure summaries prepared for each element and their associated activities.

The report preparation activities scheduled were of two types. The first involved the preparation of Quarterly Reports, as directed by the contracting agency using the Learning Center Resources Program's standard forms. The second, which was not completed as of 8/31/77, involved the preparation of a final technical report which summarily described the progress made under the 3-year contract.

(3) Results/Conclusions: The outcomes of the planning efforts are reflected in the yearly proposals submitted to BEH. Their success can be inferred from the continuity in the conduct of individual adaptation and development projects from year-to-year and the orderly growth of the abstracting process. During the final quarter of FY 1977 those activities that will need to be extended beyond the contract period were identified (e.g., the field-testing of the Two-and Three-Dimensional Aid) and the related projects operationally delineated.

Several of the more salient tangible outcomes of the monitoring and report preparation efforts are summarized in Table 3.

(4) Recommendations: Although the activities identified under this element were executed in a satisfactory manner, some further delineation of critical types of tracking data would be quite useful. Also, problems in the logic of reporting and the data requirements should be alleviated (e.g., the use of final report preparation as an important assessment item coupled with the need to produce a final report that does not cover project activities until the contract termination date).

Table 3

A Summary of the Monitoring and Report Preparation Activities

	Number of Outcomes Produced Per Contract Year-			
	1	2	3	TOTAL
(a) Staff meetings held	21	21	15	67
(b) Monthly expenditure summaries developed	12	12	9	33
(c) Quarterly Reports prepared	4	4	3	11
(d) Final Reports prepared	0	0	1[a]	1[a]

[a]The current document.

Element VIB

Participate in ALRC/SO/NCEMMH Coordination Activities

(1) Introduction: This particular element was interpreted as providing liaison with Learning Center Resources Program units and participating in professional meetings with staff from various program units and target groups.

(2) Major Activities: During the course of the 3-year contract, SOVI staff routinely participated in project Directors' Meetings and other network committee meetings. In addition, they attended and participated in a number of professional meetings with the expressed intent of helping to further the goals of SOVI. As noted under Element IIC, they used these occasions to survey exhibits of newly developed commercial aids and materials. Also, they were used to make necessary contacts related to the conduct of field tests and other evaluative undertakings.

(3) Results/Conclusions: SOVI involvement in the different types of coordination activities and meeting is summarized in Table 4.

(4) Recommendations: The meetings and related undertakings represented one of the major focal points for interchange among project staffs and fulfilled a very useful function. The coordination that existed and the purposiveness of the meetings themselves served to greatly enhance their utility and effectiveness.

Table 4

A Summary of Staff Participation in

ALRC/SO/NCEMMH Coordination Related Activities

Type of coordination activity	Number of meetings attended during 1974-75	1975-76	1976-77	Total
Directors' meetings	4	3	2	9
Network committee meetings	11	6	8	25
Meetings involving national Needs Assessment	2	3	2	7
Annual symposia	3	4	0	7
Other professional meetings	9	26	19	54

Note: Data reflect persons attending meetings.

III. Conclusions and Recommendations

A. Summary of Major Project Impact on Special Education

Delivery Systems

Overall, the results reported in the previous section provide firm evidence that the SOVI was successful and helped contribute in a substantial way to the expansion of media and materials services available for use by visually handicapped students and their teachers. This contribution is directly reflected in the progress made toward attainment of the two major goals and two supplemental goals listed in Section I-B. That program can be summarized as follows:

Goal A--To increase the numbers and varieties of materials available for the education of the visually handicapped

The activities completed in relation to this goal (primarily those described under Workscope Area Two) have resulted in (a) the adaptation and subsequent production of 63 educational materials (described in Appendix A), (b) the field testing of another, newly developed product which is currently in production (described in Appendix A), (c) the partially completed adaptation of another set of materials--these adaptation efforts were still being conducted as of 5/31/77. In addition, during these different development, adaptation, and evaluation efforts a substantial number of students and teachers representing the target population were directly involved.

Goal B--To provide materials information input to the National Instructional Material Information System (NIMIS)

The net result of these efforts was the preparation and submission for entry into NIMIS of 12,196 abstracts of materials that can be used by visually handicapped students. That single summary statistic, coupled with the relatively low-cost per entry (approximately $12.87 per abstract), clearly and unequivocally documents the degree of achievement realized in this area. (Ultimately, however, the success of these efforts rests upon the success realized in the application of NIMIS.)

Goal C--Render technical and other assistance to the cooperating ALRC's.

The activities undertaken relative to this objective resulted in the provision of assistance to a total of 5 different ALRC sponsored/affiliated groups. In all, approximately 35 professionals in the field of special education were affected by these efforts.

Goal D--Participate in selected aspects of the National Needs Assessment (NNA)

Although this objective was not completely realized, some success was achieved. More specifically, the collaborative effort involving project staff in the development of critical NNA instrumentation resulted in a viable questionnaire for use with teachers of the visually handicapped.

Furthermore, the inability to achieve culmination of the proposed 3rd year activities was beyond the control of SOVI personnel.

B. Recommendations for Future SO Efforts within the Present Workscope

Basically, efforts under each of the areas of the SO Workscope could profitably be continued. For example, efforts to date under Area II have only started to scratch the surface of the media and materials needs in the field. Furthermore, a continual need exists for periodic reappraisals of developments in the field such as occurred in relation to Element IIC.

The efforts under Area IV could conceivably be altered, in that a point will be reached when some workable majority of available products in the field will be reached. Nevertheless, activities in this area could be continued with progressively more emphasis being placed on improvements rather than acquisitions.

The continuation of these two critical areas would not dictate that the current network structure remain intact. Rather, any of a number of alternative arrangements could probably work as effectively. However, one must remember that the current approach did work, and despite all its shortcomings, resulted in the evolvement of a variety of worthwhile outcomes for the field.

C. Recommendations for Modifications of the Present Workscope

Although the present workscope is fairly comprehensive, it could be profitably modified and expanded. For example, the addition of a workscope area related to the interdependencies and implications among the elements conducted under the current workscope and the requirements of significant legislation in the field (such as PL 94-142) would be most timely and beneficial. In addition, the development and evaluation of alternative methods for delivering the outcomes of projects like those conducted under the current workscope would be very helpful.

Appendix I

List of SOVI Products*

10 Quarterly Progress reports

12,196 abstracts of materials useful in education of the visually impaired

1 set of standard criteria for evaluating materials useful for education of the visually impaired

63 educational materials adapted or developed and also disseminated

6 sets of materials almost completed with final development to be independently completed by the contractor.

Simplified Continental Relief Maps

Available from APH. Africa, Asia, and Australia were developed under The Special Office contract. With these, the series is complete.

Adaptation of "Listen and Think" taped lesson program

Levels H, I, and AR of this series were adapted under the Special Office contract. The current status of these is:

Level H--available from APH
Level I--available from APH
Level AR--to be available from APH

With the adaptation of Level AR, the ninth and final level of this series is completed. When it becomes available, all will be available from APH.

Durrell Listening-Reading Series, Forms DE and EF

Available from APH. This is an adaptation of a test series published by Harcourt Brace Jovanovich. It is available in braille and large type.

Tactile Test of Basic Concepts

Available from APH. This is a tactile analog of Form A of the Boehm Test of Basic Concepts which is published by the Psychological Corporation.

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*Technical reports describing each of the products developed or adapted during the 3-year contract are available in the project office. The products listed herein where those available as of 5/31/77.

Outline Maps for Large Type Readers

Available from APH. This is a series of 57 large type outline desk maps especially designed for use by the partially sighted. The series includes a map of the United States, six regional maps of the United States, and one each of the 50 states of the United States.

Introduction to Map Study I

To be available from APH. This is an original instructional program which provides a variety of conceptual experiences fundamental to the acquisition of basic map reading skills for use by blind students functioning in the age range of 3 to 5 years.